have the advantage of possessing a Genera Plantarum complete up to the time of publication of each of the supplementary parts.

Nomenclator Botanicus, seu Synonymia Plantarum Universalis, auctore E. T. Steudel, M.D. Ed. 2. 1840-41.

The completion of the above laborious undertaking points out in a peculiarly clear manner the great advance in the knowledge of species that has been attained during the last twenty years. In the former edition of this work (if such it ought to be called), which appeared in 1821, there are 3376 genera and 39,684 species recorded, whilst in the present edition, which has appeared at intervals during the years 1840 and 1841, the names of 6722 genera and 78,005 species are recorded; thus almost doubling the number of ascertained genera and also of species. It is probable that no previous period of similar extent would show any approach to so great a relative advance in our knowledge of the Phanerogamic plants, to which division the present work is confined.

We need scarcely say more concerning a work that must recommend itself so strongly by its mere usefulness to the notice of botanists, but may add that, as far as English publications are concerned, it appears to include nearly everything up to the conclusion of the 17th volume of the Linnæan Transactions.

Enchiridion Botanicum exhibens Classes et Ordines Plantarum; accedit Nomenclator Generum, auctore S. Endlicher, M.D. 1841.

The great work that we have already noticed by Prof. Endlicher had hardly been completed when he again comes before us with the present volume, which contains very full descriptions of the natural orders of plants; a complete list of the genera included under each; and numerous observations on their affinities, geography, qualities and use in medicine, for culinary purposes, and in the arts. We cannot too strongly recommend this book to all botanical students.

PROCEEDINGS OF LEARNED SOCIETIES.

LINNÆAN SOCIETY.

June 15, 1841.—The Bishop of Norwich, President, in the Chair.

Read, an Extract from a Letter from William Griffith, Esq., F.L.S., to R. H. Solly, Esq., F.L.S., dated Meerut, March 29, 1841.

Mr. Griffith states, that in its placentation, ovula, and protrusion of the embryonary sac, *Osyris* approaches *Santalum*, but presents in some particulars still more curious anomalies. First, the embryonary sac of *Osyris* seems to be produced beyond the base of the ovulum, passing down through the placenta and through the central tissue of the young fruit to its base. Secondly, the first steps of the growths consequent on fecundation take place outside the protruded sac, which may be found unaltered in the placenta of the ripe fruit. Whether the first cells, constituting the rudiments of the part in which albumen is subsequently deposited, are derived from the *boyau* or from the embryonary sac, Mr. Griffith states, that he has not been able to determine; but he imagines that they are derived from the *boyau.* He adds, that if his views of the seed of *Loranthus* being derived from the *boyau* solely be correct, *Osyris* is intermediate between *Loranthus* and *Santalum*; and intimates his intention of sending, on his arrival at Calcutta, a Supplement to his paper on *Loranthus,* published in the Society's Transactions.

Read also a paper "On a reformed character of the genus *Cryptolepis* of Brown." By H. Falconer, M.D., Superintendent of the Hon. East India Company's Botanic Garden at Saharunpore.

Dr. Falconer's character is as follows :—

CRYPTOLEPIS, *R. Br.*

Calyx 5-partitus. *Corolla* infundibuliformis, 5-fida; tubo intùs processubus 5 carnosis, obtusis, inclusis, cum limbi laciniis alternantibus, instructo; fauce nudâ. *Stamina* imo corollæ tubo inserta, inclusa; *filamenta* brevissima, distincta; *antheræ* sagittatæ, dorso penicillato-barbatæ, basi stigmatis margini adhærentes. *Massæ pollinis* solitariæ, granulosæ, corpusculi glandulæformis appendiculæ lineari tenuissimæ applicitæ. *Ovaria* 2. *Stylus* brevissimus. *Stigma* dilatatum, margine attenuatum, apiculo conico. *Squamulæ hypogynæ* nullæ. Folliculi divaricatissimi, ventricosi, apice acuto recto. *Semina* ad umbilicum comosa.

Frutex *volubilis, glaberrimus, succo lacteo scatens;* foliis *oppositis, brevè-petiolatis, lato-ellipticis cum acumine subulato brevi, suprà lætè-virentibus, subtùs albido-glaucis, transversè venosis;* petiolis *supra basin articulatis;* corymbis *axillaribus, brevè-pedunculatis, curtatis*; floribus *subsessilibus, majusculis, citrinis*; corollæ *limbo patulo, segmentis ligulatis.*

C. Buchanani, Rœm. et Sch., iv. p. 409.
C. reticulata, *Royle, Illustr.*, p. 270.
Nerium reticulatum, *Roxb. Flor. Ind. Orient.,* ii. p. 9.
Hab. passim in Indiâ Orientali.

In his Monograph in the Wernerian Transactions, Mr. Brown referred the genus *Cryptolepis,* which he there established, to *Apocyneæ,* placing it next to *Apocynum,* and in this he has been followed by all subsequent writers; but Dr. Falconer states that it has the whole stigmatic apparatus of *Asclepiadeæ,* with granular pollen as typically developed as in *Cryptostegia* or any other of the *Periploceæ,* although in a less considerable degree of evolution. He regards it, however, as constituting the closest known transition from that family to *Apocyneæ.* He thinks the extreme minuteness of the appendiculæ may account for their having escaped Mr. Brown's observation in the dry specimen; but adds, that there are two other points of difference, which lead him to suspect his plant to be distinct from that described by Mr. Brown. These are the want of hypogynous scales, of which he finds no trace, and which he believes to be wanting in the series of Periploceous genera allied to *Cryptolepis*; and the axillary, and not interpetiolar, inflorescence. He also gives a detailed description of the sexual organs, and states that he has never been able to observe the pollen tubes either naturally or artificially produced.

In a supplementary note, Dr. Falconer adds, that he has since learned by letters from Dr. Wight and Mr. Griffith, that both those gentlemen have been long aware of *Cryptolepis* being an Asclepiadeous genus. With reference to Dr. Wight and Mr. Arnott's genus *Streptocaulon*, under which those authors include the mass of Dr. Wallich's Indian species of *Periploca*, he observes, that *S. calophyllum* wants the principal character on which the distinction of that genus from *Periploca* is founded, and suggests its restoration to *Periploca*, of which he also characterizes a new species from the neighbourhood of Cashmeer with a peculiar pseudo-aphyllous habit. Of these species he gives the following characters:—

P. calophylla, volubilis glabra, foliis angustè lanceolatis longè attenuatis utrinque nitidis transversè venosis, cymis subsessilibus paucifloris, floribus breviter pedicellatis, corollis intùs parcè hirsutis, squamis hirsutissimis, folliculis elongatis gracilibus subparallelis (nec divaricatis!).

Streptocaulon calophyllum, *Wight*, *Contr. Ind. Bot.*, p. 65.

Hab. passim in vallibus exterioribus montium Himalensium.

P. Hydaspidis, volubilis ramosissima glabra, ramis fasciculatis nodoso-articulatis, foliis tenuissimis linearibus apiculatis adpressis remotis caducis, cymis axillaribus multifloris, floribus breviter pedicellatis, corollâ intùs squamisque tomentosis.

Hab. secus ripas Hydaspidis extra Kashmeer prope "Khutao Kelah."—*Fl.* Septembri.

The paper was accompanied by a coloured drawing of *Cryptolepis Buchanani*? var. *reticulata*, and of the details of its fructification.

Read also, "A Description of an additional species of *Paussus*." By J. O. Westwood, Esq., F.L.S., &c.

The following are the characters of this species, which Mr. Westwood states to be most nearly allied to *P. ruber*, Thb., and of which he has seen only a single specimen in the collection of Samuel Stevens, Esq., who obtained it together with specimens of *Platyrhopalus denticornis* and *P. aplustrifer* in a small collection of Indian insects, without any indication of its precise locality.

Paussus Stevensianus, pallidè luteus, capite rugosulo tuberculis 2 elevatis inter oculos, antennarum clavâ magnâ posticè excavatâ, elytris versus apicem fasciculis duobus minutis pilorum instructis.

November 2.—The Bishop of Norwich, President, in the Chair.

Read, "Notes on the Habits of the Box-Tortoise of the United States of America, the *Cistuda Carolina* of Gray." By George Ord, Esq., F.L.S.

Mr. Ord states that this species is common in Pennsylvania, and appears to prefer dry situations, only frequenting the wet in pursuit of some favourite food, such as the remains of fish which lie scattered under the trees in swamps where the Night-heron (*Ardea Nycticorax*, L.) breeds. It feeds also on insects, worms, and tender fungi, and eats greedily of strawberries, raspberries, and soft peaches. Its flesh is excellent, but the farmers have the same prejudice against it as against that of frogs. It hybernates about the middle of October, preferring a loose soil and southern exposure; and in severe winters some individuals perish in consequence of not having penetrated to a sufficient depth to escape the frost. About the 20th of April the survivors reappear in a feeble state, until invigorated by the returning warmth.

Mr. Ord kept a number of these Tortoises for several years in his garden, where they had an ample range, abundance of suitable food, and convenient places of winter resort. They regularly deposited their eggs, but seldom produced young, a circumstance which he attributes to the destruction of the eggs by ants. He gives from his books of memoranda the details of observations made in the years 1814 and 1832 on their mode of laying and depositing their eggs, and the circumstances attending their hatching.

The earliest deposit observed took place on the 22nd of June 1814. The Tortoise scooped out the earth with her hinder feet, using them alternately, as deep as she could reach, when the earth at the bottom of the hole was loosened. The first egg was secured in this loose earth, and five other eggs were laid and deposited in the same manner, at intervals of four or five minutes, the earth being scraped from the sides of the hole and carefully pressed upon each egg as it was deposited, and the hole itself being finally covered over with the loose earth carefully packed and pressed. The animal kept in one position during the whole process, not looking once at the deposit. The eggs appeared to pass with facility, and shortly after laying the last egg, she uttered a guttural sound, several times repeated. The number of eggs appears to vary from three to six.

In June 1832 Mr. Ord renewed his observations. Two of the female Tortoises then in his possession having been disturbed when about to lay, abandoned the place; one of these laid on the subsequent day, and the other not until the second day after, whence Mr. Ord concludes that they possess the power of retaining their eggs under certain circumstances. The eggs were always laid about or after sunset; and some of the Tortoises, if not all, laid twice during the season. Of a deposit made on the 28th of June, one of the eggs (that nearest the surface) was hatched on the 24th of September. On struggling out of the shell the young animal seemed to be almost blind; its case was very soft and cartilaginous; and in the centre of the under shell, or between the abdominal and the femoral shields, there was a large umbilical process. It measured an inch in length and could crawl with ease. On the 14th of October another young Tortoise made its appearance from the same deposit; it was livelier and larger than that first hatched, measuring an inch and three-quarters in length, and its eyes were completely open. Mr. Ord conjectures that it had emerged from its shell some days previously, but had only then made its way to the surface. On the 15th another made its appearance, of a size between the other two; and on the same day Mr. Ord inspected the deposit and found a fourth young one, still in its shell, but struggling to get free, in which it succeeded during the afternoon. It was rather larger than any of the rest, and had remained in the shell one and twenty days longer than the first. On the 29th of September, Mr. Ord examined a deposit of eggs laid on the 26th of June. None appeared to have hatched, but the shell of the uppermost having been partly eaten by the ants, he opened it and found a perfectly formed fœtus, measuring an inch in length, attached to a yolk-bag three-quarters of an inch long. On the 21st of October Mr. Ord examined one of a number of eggs which he had removed from their deposits on the 24th of September, and found it to contain a living young, not quite so large as that last mentioned, and having a much larger yolk-bag; and on the 1st of December he took up all the eggs of which he had any knowledge, none of which (although some were still living) were sufficiently matured for exclusion; a circumstance which he attributes to a deficiency of the usual summer heat and to severe early frosts. Of the four young ones hatched, one escaped; and the remaining three hybernated with the adults, reappeared in the spring, and lived in the garden for several years.

November 16.—E. Forster, Esq., V.P., in the Chair.

Read, "Descriptions of some Vegetable Monstrosities," by the Rev. William Hincks, F.L.S., F.R.S.E., &c.

In this paper, which is a continuation of one read before the Society towards the close of the year 1839, Mr. Hincks arranges the monsters described by him under the several heads of adherences, transformations, and increased or diminished developments of particular parts.

The adherences comprise, first, a case of the union of five grapes into one fruit in so complete a manner as to render it probable that the flowers were also united; secondly, an instance of cohesion between four peduncles of *Centaurea moschata*, without fusion of their capitula; and thirdly, the common case of adherence of two flowers of *Fuchsia fulgens*. The latter is introduced for the purpose of remarking how frequently, when the usual number of organs in a circle results from the suppression of certain parts rudimentally present, the same cause which produces adherence with the nearest flower, also developes all the rudiments, and thus increases the number of parts. On the other hand, in cases of union by fusion, that is, where the united flowers form one enlarged flower, Mr. Hincks observes, that one organ at least is generally sacrificed at each point of junction.

Of transformations Mr. Hincks notices two: first, a terminal bud of an *Azalea*, gathered about the period when the plant ceased to produce blossoms, which is partially converted into a flower, the leaves nearest the centre being imperfectly changed into stamina, and surrounded by many of petaloid aspect, while the outer leaves differ from the ordinary appearance only in having a little colour; the organs are not arranged in circles, and one leaf only, and that among the most remote from the centre, assumes the form of a pistillum. The second transformation described occurs in a specimen of *Gentiana campestris*, in which all the parts of the flower are converted into leaves, which are somewhat petaloid and crowded into a rose-like tuft: this kind of transformation is similar to that described and figured by M. De Candolle in *Trifolium repens*.

The first case of increased or diminished development noticed by

Mr. Hincks affects a specimen of *Anagallis arvensis*, resembling one described by M. Moquin-Tandon as found by M. Gay, in which an increased development of the exterior circle is accompanied by diminution in the interior ones: the effect produced is stated to be very unequal in different flowers, but the more the calyx is enlarged, the more the interior circles are contracted. The second case is the well-known wheat-ear carnation, *Dianthus Caryophyllus imbricatus*, L., which is noticed as probably affording the best example of the monstrous multiplication of a particular circle. A third case occurs in a capitulum of *Matricaria*, in which the bracteæ, consisting under ordinary circumstances of paleaceous scales, are enlarged into full-sized leaves, completely deforming the flower: the rose-ribwort is noticed as a phænomenon of the same kind. Fourthly, Mr. Hincks mentions a monstrous variety or highly developed form of *Convallaria multiflora*, cultivated at Kew, which he presumes to be the *var. bracteata* of De Candolle and Duby: in it the number of flowers usually reaches five or six, and each of them proceeds from the axilla of a small leaf on the pedicel. And lastly, the author notices under this head a case of abortion or atrophy affecting the leaf of a fern cultivated by Messrs. Rolleston, by which in one instance the whole side of a frond, and in another the secondary veins with the parenchyma at both sides are entirely suppressed; a phænomenon which he has also observed in *Scolopendrium officinale*.

Read also the commencement of a paper "On the Influence of the Dew-point on the Temperature of Plants," by D. P. Gardner, M.D., of Hampden Sidney College, Virginia, communicated by the Secretary.

December 7.—R. Brown, Esq., V.P., in the Chair.

Read, "On the Structure of the Nut known as Vegetable Ivory," by Daniel Cooper, Esq., A.L.S.

Read also the conclusion of Dr. Gardner's paper "On the Influence of the Dew-point on the Temperature of Plants."

ENTOMOLOGICAL SOCIETY.

August 2nd, 1841.—John Walton, Esq., V.P., in the Chair.

Mr. S. Stevens exhibited a number of minute British *Coleoptera* recently captured in Kent, including specimens of a species of *Micronyx* Schönh., a genus not hitherto recorded as British, but which Mr. Curtis had described as a species of *Pissodes* (*P. pygmæus*). Mr. Curtis still however considered his insect as distinct, being smaller than Mr. Stevens's specimens; but Mr. Walton stated that he possessed specimens smaller than any of Mr. Curtis's.

Mr. F. Parry exhibited two cases of splendid insects (chiefly nondescripts) from the Himalayas.

Mr. Westwood stated that three specimens of *Carabus Schönherri* were taken on Ben Lomond in 1822 by A. Melly, Esq., in whose collection he had recently observed them. Mr. White also stated that there was a specimen in the British Museum cabinet, taken on Ben Lawes by Dr. Leach, which had also been supposed to be this species.

Mr. Westwood exhibited a few of the extensive collection of dissections made by Latreille, consisting of several hundred illustrations chiefly of the *Coleoptera* and *Hymenoptera*, accompanied by notes and sketches, and which had been presented to him by Mr. Melly. He commented upon the value of this collection, as affording the means of authenticating Latreille's various descriptions and notices; adding as a proof of the minute scrupulosity of that distinguished entomologist, that occasionally several dissections occurred of the same insect (four of *Oryssus* and three of *Psammœchus* were exhibited): it likewise afforded the means of determining the precise types of certain genera, of which *Anteon* and *Ceraphron*, with their dissections, were exhibited as illustrations.

Mr. Westwood also exhibited Latreille's specimens and dissections of the anomalous genus *Prosopistoma*, from Madagascar, regarded by that author as Crustaceous near *Apus*, but which M. M. Edwards regards as the larva of some other crustaceous animal.

Mr. A. White exhibited a drawing of *Echidnocerus cibarius*, a new genus of Anomourous crabs, brought from the Colombia river by Sir George Staunton, used by the natives for food, and nearly allied to *Lithodes*, but distinguished by the *spinose basal* joint of the antenna. He also exhibited drawings of a species of *Ega*, allied to *E. affinis* of M. Edwards, taken on the cod by the Newfoundland fishermen, by whom it is called the fish-doctor. Its spawn is called by them egg-salve, and is used both as a salve and as a bait for the cod.

He also exhibited specimens of some very minute bees, which had lived in a colony for two years near Southampton. Their nest had been found in a piece of log-wood from Campeachy, from which they had been removed into a cocoa nut filled with pieces of log-wood, in which they had thriven and made honey. The specimens were too much damaged to admit either the genus or species to be determined.

The following memoirs were read:—

Monograph of the Elaterideous genus *Compsosternus*, Latr. By the Rev. F. W. Hope.

Sp. 1. (Type of the genus) Elater fulgens, Fabr. Long. corp. lin. 20. [*Hab*. China.

Sp. 2. C. sumptuosus, H. *C. aurato-viridis, nitidus, capite anticè subfoveolato, elytris aurato-viridibus, acuminatis, glabris, nitidis et punctulatis.* Long. corp. lin. 14¾. [*Hab*. Java? Manilla. Mus. Dupont.

Sp. 3. C. aureolus, H. *Metallico-viridis roseoque colore tinctus, antennis nigricantibus, thorace vix subconvexo, postice lobato, elytris viridibus striato-punctatis, striis haud fortiter impressis.* Long. corp. lin. 14¼. [*Hab*. Singapore. Tenasserim coast.

Var. C. Calanus, Hope, MSS. olim.

Sp. 4. C. Cantori, H. *Æneus thorace marginato et tomentoso, antennis palpisque nigricantibus, thoracis lateribus roseo-cupreis, elytris æneis, substriatis, tenuissimè punctulatis.* Long. corp. lin. 22½. [*Hab*. Assam. Dr. Cantor.

Sp. 5. C. Latreillii. *Purpureo-viridis, thorace in medio purpureo,* *lateribus roseis, elytris viridibus purpureoque tinctis; corpore infrà aurato-viridi.* Long. corp. lin. 15¼. [*Hab.* Cochin China. Duvaucel. M. Dupont.

Sp. 6. C. Wilsoni, H. *Aurato-viridis, lateribus thoracis subroseo-tomentosis, elytris viridibus, antennis atro-violaceis, thorace subconvexo, tomentoso, medio viridi, lateribus æneis roseo colore tinctis, elytris viridibus, lateribus auro fluentibus, femoribus tibiisque violaceo-æneis, tarsis cyanescentibus.* Long. corp. lin. 18. [*Hab.* Madras and Neilgherry Mountains.

Sp. 7. C. Smaragdinus, H. *Viridis, antennis palpisque nigro-violaceis, scutello nigro-æneo, elytris atro-viridibus subtilissime punctulatis, corpore infrà cyaneo-viridi, femoribus tibiis violaceis tarsisque atro-piceis.* Long. corp. lin. 14. [*Hab.* Madras.

Sp. 8. C. Delessertii, Guerin.

Sp. 9. C. Duponti, H. *Viridis, thorace antice convexo, angulis lateralibus subdepressis, elytris viridibus tenuissime punctulatis, corpore infra subaurato-viridi, pedibus obscurioribus.* Long. corp. lin. 12. [*Hab.* Malabar. Mus. Dupont.

Sp. 10. C. rosicolor, H. *Puniceo-viridis roseoque colore tinctus, thorace vix convexo, punctato postice subprotenso roseo, elytris fortiter striato-punctatis, sutura marginibusque externis elevatis et roseis, pedibus flavo-testaceis, tarsis obscurioribus.* Long. corp. lin. 11½. [*Hab.* Java. Mus. Dupont.

Sp. 11. C. Proteus, H. *Aurato-viridis, antennis nigricantibus, thorace convexo sub lente subtilissime punctulato, elytris auratis splendidis, marginibus lateralibus elevatis, sutura violacea, pedibus viridibus, tarsis piceis.* Long. corp. lin. 16. [*Hab.* Manilla.

Sp. 12. C. Stephensii, Hope. In Gray's Zool. Miscell. [*Hab.* Nepaul.

Sp. 13. C. Leachii, H. *Chalybeo-viridis thorace cærulescenti, elytrisque acuminatis et æneo-virescentibus, thorace in medio parùm convexo, elytris viridibus, corpore infra cærulescenti, pedibus concoloribus.* Long. corp. lin. 17. [*Hab.* East India. Singapore.

Sp. 14. C. Echscholtzii, H. *Chalybeo-violaceus, capite inter oculos vix foveolato, antennis atro-violaceis, elytris sub lente tenuissime punctulatis, pedibus violaceis, tarsis infra piceo-pilosis.* [*Hab.* Manilla.

Notice of a hitherto unobserved character distinguishing the sexes of certain *Lucanidæ*. By J. O. Westwood (since published in the Annals of Natural History, vol. viii. p. 121).

Descriptions of some *Dynastidæ*, in the collection of the Rev. F. W. Hope, illustrating the natural relations of the genus *Cryptodus* with figures. By J. O. Westwood.

Rhizoplatys, W. (Subg. nov. e genere Phileuri.) *Corpus oblongum subconvexum. Clypeus anticè acuminatus posticè tuberculo armatus. Antennæ articulo 1mo latissimo. Maxillæ galea tridentata, mandone inermi. Mentum magnum heptagonum, labium et articulos duos basales palporum labialium obtegens. Ungues pedum anticorum inæquales, articulo basali tarsorum posticorum suprà elongato-acuminato.*

Rh. cribrarius, W. *Piceo-niger prothorace rudè punctato, excavatione profundâ in parte mediâ et anticâ, utrinque tuberculis duobus elevatis armato, elytris irregulariter punctatis.* Long. corp. lin. 10. [*Hab.* Senegal?

Actinobolus, W. *Corpus oblongo-ovatum convexum. Clypeus anticè in lobos 5 rotundatos productus. Antennæ articulo* 1^{mo} *lato. Os inferum mento magno obtectum. Labrum transversum. Labium et palpi labiales (nisi apex articuli ultimi) mento obtecta. Mandibulæ corneæ, curvatæ apice acutæ.*

Act. radians, W. *Piceo-rufus antennis tarsisque nigricantibus, capite posticè et prothorace anticè varioloso-punctatis, hoc lineâ dorsali impresso, elytris striato-punctatis.* Long. corp. lin. 9. [*Hab.* Brazil.

A review of the characters of the *Phileurideous Dynastidæ* in comparison with those of *Cryptodus* and the two groups above described, was then made, and a description was added of a genus "which possesses a structure of the organs of the mouth quite unlike that of every other *Dynastideous* group;" namely,

Leptognathus, W. *Corpus oblongo-ovatum convexum. Clypeus (os omnino obtegens) anticè in lobos duos rotundatos elevato-productus. Os inferum minutum mento magno clausum. Mandibulæ minutæ bipartitæ (ferè ut in Cetoniis). Maxillæ lobis duobus minutissimis membranaceis (supero vel galeâ vix distinguendo). Prothorax magnus, ♂ anticè subquadratus impressione magnâ transversâ notatus.*

Leptognathus Latreillianus, W. *Piceo-niger, nitidus, prothorace rude punctato postice sulco impresso, elytris rude punctato-striatis striis ante apicem confluentibus.* Long. corp. lin. 8–10. [*Hab* Senegal.

September 6th.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

The President read an extract from a letter received from S. S. Saunders, Esq., in Albania, giving an account of some experiments made with *Mygale Ionica,* whence it appeared that the peculiarity previously observed and described by him in his memoir on that insect, consisting of the formation of a trap door at each end of its tube, was only an accidental circumstance.

Mr. Tulk exhibited a specimen of *Tachina pacta,* Meig., together with the abdomen of *Carabus violaceus*: the former insect had been reared from one of four pupæ found in the interior of the abdomen of the latter. The *Carabus* was found dead amongst moss on the 16th August, 1841, and the first imago appeared on the 21st, the second on the 23rd, the other two still remained undeveloped. These four pupæ almost entirely filled up the cavity of the abdomen. An oval aperture existed in the margin of the third ventral arc of the abdomen, near the margin of the elytra, and was probably that by which the larvæ made their way into the interior, after having been hatched from eggs deposited on the exterior of the living beetle.

He also exhibited some specimens of *Pediculus Melittæ,* K., found upon the body of *Volucella bombylans*. Mr. Newport stated, that notwithstanding this fact he was convinced, by a series of observations, that these supposed *Pediculi* were in reality the young larvæ of *Meloe*.

Mr. Hope communicated a letter and drawing received by Prof. Royle from Dr. Malcolmson in India, illustrating the habits of a large species of *Lamia* which had destroyed some large trees, and the reply he had written to the queries of the latter gentleman as to the name, habits, and means of destruction of the insect in question.

Mr. Ingpen exhibited a species of *Çlytus* which had been reared from the sugar-cane, having remained at least three years in the larva state.

Mr. G. R. Waterhouse exhibited a specimen of a *Coleopterous* larva, which he had found on the stems of water plants, which he regarded as the larva of *Donacia micans*, and of which he read a detailed account.

Mr. Hope communicated a letter he had received from Dr. Cantor, stating that he had kept *Fulgora candelaria* alive for a length of time, and had never observed the slightest luminosity, the existence of which was also denied by several intelligent Chinese with whom he had spoken. If at all luminous, he considered that the luminous property might only be developed at particular seasons.

Mr. Yarrell exhibited a large globular nest, of beautiful white silk, formed by an English spider, and which was half filled with minute spiders just hatched.

Mr. S. Stevens exhibited an extensive series of rare *Curculionidæ* captured by himself near Arundel, of which he has since published a list in the "Entomologist," including *Apion dissimile*, Germar, a species new to Britain.

Mr. Walton mentioned that he had recently captured both sexes of the rare *Apion lævigatum* at Birch Wood, the species having been previously only found in Suffolk, and females alone known, these were of a blue colour, but the male is black, as in *A. Sorbi*. He likewise brought for distribution amongst the members a number of specimens of *Apion Limonii*, which he had recently captured in great numbers upon the *Statice Limonium* at Holme-juxta-mare, on the coast of Norfolk, where this beautiful plant covers hundreds of acres.

Mr. Newport announced the recent discovery of *Scolopendrilla notacantha* of Gervais, which he had found at Sandwich in Kent.

Mr. Westwood exhibited a fossil which he had obtained at Stonesfield, and which from its form appeared to be the large elytron of a beetle, especially as Dr. Buckland had obtained many elytra from that place, and which, in his Bridgewater treatise, were described as Buprestideous, but which Mr. Westwood regarded as *Prionideous*, Dr. Buckland having exhibited them to him together with some *trilobites* recently received from Cincinnati, together with another, supposed to be a *Calymene*, but which Mr. Westwood regarded as the abdomen of *Pinnotheres*. This distinction was important, since, if correct, it implied the existence of recent animals in the supposed older formations (of which the fossil tooth recently found at Stonesfield offered an instance), thereby bringing into question the correctness of the generally received views of the superposition of the different geological formations.

A memoir was read upon *Mæchidius*, MacL., a genus of *Lamellicorn* beetles, with descriptions and figures of some new genera belonging to the same tribe, by J. O. Westwood, F.L.S.

From a review of the characters of the genus *Mæchidius* Mr. Westwood refers it to the family *Melolonthidæ,* and describes the following new species.

Mæchidius Hopianus, W. *M. oblongus, scaber, nigricans, opacus, setulis luteis* (*præsertim thorace*) *subcinereus; prothoracis angulis posticis valde emarginatis.* Long. corp. lin. 5½. [*Hab.* New Holland ? Mus. Hope.

Mæchidius Mellianus, W. *M. augustior nigricans, capite anticè vix emarginato, prothoracis lateribus rotundatis, angulis posticis extus prominentibus, tibiis anticis obtusè tridentatis.* Long. corp. lin. 4½. [*Hab.* New Holland. Mus. Melly.

Mæchidius Macleaynus, W. *M. piceus, nitidus, punctatus, longius setosus, elytris oblongo-ovatis depressis, thorace lateribus rotundatis, angulis posticis acutis, tibiis anticis acute* 3-*dentatis.* Long. corp. lin. 5. [*Hab.* New Holland. Mus. Westwood.

Mæchidius Raddonianus, W. *M. piceus, punctatus, brevissimè setosus, capitis margine antico profundè et acutè emarginato, thoracis lateribus rotundatis, angulis posticis acutis.* Long. corp. lin. 4½. [*Hab.* Port Philip, Australia. Mus. Raddon.

Mæchidius rufus, (Hope MSS.). *Rufo-castaneus, nitidus, punctatus, tenuè setosus, capite lato, marginibus elevatis, tibiis anticis obtusè bidentatis, femoribus posticis in medio dilatatis articuloque basali tarsorum posticorum longè penicillato.* Long. corp. lin. 2½. [*Hab.* Port Essington, Australasia. Mus. Hope.

CRYPTOGENIUS, W. (Gen. nov. ad fam. Trogidarum pertinens.) *Corpus supra planum, rugosum, setosum, prothorace subrotundato, elytris angustiori, pedibus longis, gracilibus, serrulatis. Clypeus inferus. Labrum maximum, os* (*insecto quiescenti*) *omnino obtegens. Mentum lateribus angulatis, anticè profundè et acutè emarginatum. Antennæ* 10-*articulatæ.*

CRYPTOGENIUS Miersianus, W. *Cr. nigricans, subnitidus, luteosetosus, capite et prothorace circulis concentricis confluentibus, sculpturatis, elytris striis numerosis tenuè impressis, singulo tuberculis triplici serie ordinatis.* Long. corp. lin. 3½. [*Hab.* South America. D. Miers.

ANAIDES, W. (Gen. nov. ad fam. Trogidarum pertinens.) *Corpus suprà planum, rugosum, setosum, anticè angustius, prothorace in medio longitudinaliter impresso; posticè latiori. Caput subovale. Labrum exsertum, transversum, parùm emarginatum. Mandibulæ porrectæ, apice curvatæ, acutæ. Maxillæ elongatæ, lobo apicali longo, setoso. Mentum oblongum, lateribus parùm rotundatis, margine antico ferè recto. Pedes longiusculi, serrati. Antennæ* 10-*articulatæ.*

ANAIDES fossulatus, W. *A. nigro-fuscus, subnitidus, punctulatus, setosus, antennarum clavâ pallidiori, tibiis anticis dentibus tribus armatis.* Long. corp. lin. 3½. [*Hab.* South America. Mus. Hope.

SILPHODES, W. (Gen. nov. ad fam. Geotrupidarum pertinens.) *Corpus ovatum, subconvexum, marginibus reflexis. Labrum porrectum, breve, in medio emarginatum. Mandibulæ robustæ, corneæ, margine externo valdè rotundato, apice in dentibus duobus minutis declivibus producto. Maxillæ lobo externo magno, rotundato. Mentum subquadratum, lateribus rotundatis. Pedes longi, graciles, unguibus inæqualibus et irregularibus.*

SILPHODES Sumatrensis, W. *S. piceo-castaneus, capite latiori, elytris striato-punctatis, margine longe-setoso.* Long. corp. lin. 3½. [*Hab.* Sumatra. Sir S. Raffles.

SILPHODES Philippinensis, W. *S. piceo-castaneus, capite thoraceque magis rufescentibus, elytris irregulariter valdè punctatis, striâ suturali alterisque 8 longitudinalibus (per paria dispositis) e punctis confluentibus formatis.* Long. corp. lin. 4½–6. [*Hab.* Philippine Isles. Mr. Cuming.

SILPHODES Gambiensis, W. *S. castaneo-fuscus, prothoracis et elytrorum marginibus suturâque rufescentibus; elytris sub lente tenuissime punctatis striisque tribus è punctis majoribus in singulo elytro.* Long. corp. lin. 6. [*Hab.* Gambia and Senegal. Mr. Tebbs. Mus. Brit.

October 4th.—W. W. Saunders, Esq., F.L.S., President, in the Chair.

Mr. Westwood exhibited some beautiful insects from the Gold Coast, Africa, and Port Philip, Australia, from the collection of Mr. Raddon, including a new species of *Goliathus* (*Eudicella ignita*, W.), some fine *Cerambycidæ*, &c. Also a new and singular genus of large size allied to *Cicada*, from New Holland, from the collection of Mr. Curtis, and which that gentleman proposed to name *Cystosoma Saundersii*. Also a common house-spider, to the hind extremity of the cephalothorax of which remained attached the exuvium of the dorsum of the former cephalothorax, although it had remained alive in that state several days. He also exhibited a drawing of a new modification of the pad-like cushion on the under-side of the basal joints of the fore tarsi of a new species of *Cicindelidæ*, from the Mauritius (constituting a new and distinct subgenus), in which the whole of the under-side of the limb was thickly clothed with clavate setæ, visible to the naked eye.

The following memoirs were read:—

Notices of the cannibal habits of various caterpillars. By G. A. Thrupp, Esq.

Additional observations upon, and descriptions of new species belonging to the genera *Cryptodus*, *Mæchidius*, and *Parastasia*. By J. O. Westwood, the substance of which is incorporated in the abstract of the proceedings of the meetings of July 5th, and September 6th, 1841.

GEOLOGICAL SOCIETY.

May 19th, 1841.—A paper "On the Agency of Land Snails in corroding and making deep Excavations in compact Limestone Rocks," by the Rev. Professor Buckland, D.D., F.G.S., was first read.

During the meeting of the Geological Society of France at Boulogne, in September 1839, Dr. Buckland's attention was called by Mr. Greenough to a congeries of peculiar hollows on the under surface of a ledge of carboniferous limestone rocks. They resembled at first sight the excavations made by Pholades, but as he found in them a large number of the shells of *Helix aspersa,* he inferred that the cavities had been formed by snails, and that probably many generations had contributed to produce them*.

A few years since, the Rev. N. Stapleton informed the author that he had discovered at Tenby, in the carboniferous limestone on which the ruins of the castle stand, perforations of Pholades 30 or 40 feet above high-water level; but having recently examined the spot, Dr. Buckland ascertained that these excavations were the work of the same species of Helix as that which had formed the cavities in the limestone near Boulogne, and he found within them specimens of the dead shells as well as of the living. The mode of operation by which the excavations were made, he conceives, is the same as that by which the common limpet (*Patella vulgata*) corrodes a socket in calcareous rocks, and he is of opinion that the corrosion is due to the action of some acid secreted from the body of the limpet or helix.

That the perforations, both at Boulogne and Tenby, were not the work of Pholades, Dr. Buckland says, is evident,

1st. From their size and shape, which, instead of the straight and regular form accurately fitting the shell of the animal by which each hole was perforated, are tortuous, irregularly enlarging and contracting, and rarely continuous in a straight line. The holes moreover are often separated by only a thin partition, or are confluent.

2ndly. Because they are wanting on the upper surface of the projecting ledges of limestone, whilst on the sides and lower surfaces of the ledges they are excavated to considerable depths.

The above reasons, Dr. Buckland says, against the excavations having been made by any marine lithophagous animal, are favourable to the hypothesis which refers the production of them to snails. These animals, he observes, could find shelter only on the margin and lower surface of the projecting rock, and the irregular form of the confluent cavities correspond with that of the clusters of snails in their ordinary latitat and hybernation; and if to these reasons be added the fact of finding both living and dead shells in the excavations, the evidence, the author conceives, is decisive as to the agency of snails in producing the phænomena under consideration.

In conclusion, the author offers some remarks on the means by which these hollows have been corroded having been overlooked, in consequence, he suggests, of their having been probably referred to the action of the weather, or water, or to original irregularities in the composition of the stone.

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* See Bulletin Geol. Soc. France, vol. x. p. 434, 1839.

A paper "On Moss Agates and other Siliceous Bodies," by John Scott Bowerbank, Esq., F.G.S., was then read.

In a paper "On the Origin and Structure of Chalk-flints and Greensand Cherts*," Mr. Bowerbank inferred that the sponges from which he conceives those bodies originated, differed from recent keratose sponges only in having possessed numerous siliceous spicula. Since that paper was read, the author, however, has found in true keratose sponges from Australia†, as well as in the sponges of commerce from the Mediterranean and the West Indies‡, siliceous spicula in great abundance. All discrepancies, therefore, between the extinct and modern types of a portion of the animals under consideration, he says, is now removed. In these prefatory remarks, Mr. Bowerbank likewise states that there is at present only one known species of recent sponge (*S. fistularis*) the fibre of which is truly tubular.

The author then proceeds to detail the evidences of the existence in moss agates from Oberstein and other parts of Germany, as well as from Sicily, and in green jaspers from India, of the remains of sponges, in the following order: 1st, the proofs of the fibrous structure; 2nd, of the preservation of gemmules; and 3rd, those of the existence of vascular structure. The specimens were examined as opake objects, with direct light concentrated by a convex lens. The number of agates amounted to nearly 200, and that of green jaspers to about 70.

1. *Fibrous structure.*—Though polished agates afforded Mr. Bowerbank, in almost every specimen, strong evidence of spongeous origin, yet the structure and arrangement of the fibres were seldom perfectly preserved throughout, presenting every intermediate state from complete decomposition to the most distinct spongeous tissue. The siliceous matrix of these remains exhibited a clear and frequently crystalline aspect, but the prevailing tint of the enclosed organic matter was bright red, brown, or ochreous yellow; occasionally, however, the fibre was milk-white or bright green. The colouring matter was generally confined within the bounds of the animal tissue, leaving its surface smooth and uninterrupted; sometimes it occurred only in the interior of the tubular fibre, the sides being semipellucid or milk-white; whilst in other cases not only the fibre was completely charged with colouring matter, but the surface was also slightly encrusted with it. In an agate believed to be from Sicily, the greater part consisted of a confused mass composed of innumerable bright red fibres with no perceptible remains of surrounding structure, but near the margin of the specimen the tubuli were as perfectly preserved as in a recent sponge, presenting a semi-pellucid and horny-looking substance enveloping red fibres. In those instances in which the red pigment did not appear to have entered

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* See Geol. Trans., 2nd Series, vol. vi. Part 1. 1841. Proceedings, vol. iii. p. 278, 1840.

† Annals of Nat. Hist., April 1841.

‡ Microscopic Journal, vol. i. No. 1, p. 8, 1841.

the tube, the structure was best preserved, and Mr. Bowerbank states that such ought to be the case, as the fibres of the *Spongia fistularis*, though hollow throughout, are closed near the natural termination. The tubes in the Sicilian agate anastomosed in the same manner as the fibres of the Mediterranean sponge of commerce, and in the places where they were intersected they frequently exhibited the internal cavity. These characters, the author remarks, prove that the red fibre is the cast of the interior of the tube, and its diameter, he adds, is as nearly as possible the same as that of the hollow of the tube. In a moss agate from Oberstein the walls of the best-preserved tubuli were charged with red pigment, and the internal cavity was filled with pellucid silex, while the portion which had suffered most from decomposition was a confused bright red mass with obscure traces of fibrous structure.

In the green jaspers from India the organic remains were found to be generally better preserved than in the moss agates of Germany and Sicily, and admitted of being recognised as distinct species. The green colouring matter was confined, with very few exceptions, within the boundaries of the sponge-fibre, the surrounding matter consisting of minute pellucid radiating crystals. Some of the specimens examined by Mr. Bowerbank were furnished with minute contorted tubuli, very similar to those which are described in his former paper* as occurring upon the surface of chalk-flints. In other specimens the fibres were not disposed in the same manner as in the sponge of commerce, but in a series of thin plates, resembling very much the macerated woody fibres of the leaves of some endogenous plants. Only one recent species, from Australia, is known to Mr. Bowerbank to exhibit this structure.

No spicula are mentioned by the author in either the agates or jaspers, and but one instance of the occurrence of foraminifera. The whole of the sponges contained in the green jaspers, Mr. Bowerbank refers to that division of the keratose which he has called *Fistularia*.

2. *Gemmules.*—A specimen of Indian green jasper, which had undergone so great decomposition as to prevent the original fibrous structure from being detected, presented innumerable globular vesicles of nearly uniform size. Many of them were simple and transparent, and could be recognised as organic only by the regularity of their size and form, and by having universally dispersed over their outer surface minute irregular black particles; but by far the greater number of them had in their interior a globular opake body, about one-third their own diameter. Associated with these vesicles were numerous small fibrous masses resembling minute keratose sponges, the largest of which were five or six times the diameter of the vesicles; but the smallest were identical in nature with the nucleus, though in a higher state of development. In other specimens from the same mass of jasper, larger vesicles were found more sparingly imbedded amidst the fibrous tissue of the sponge. From these characters and their resemblance to those of the ova of some recent sponges, Mr. Bower-

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* Geol. Trans., 2nd Series, vol. vi. Part 1. 1841.

bank has little doubt that the vesicles are the fossilized gemmules of the sponges which gave the form to the siliceous masses in which they are imbedded. An agate supposed to have come from Oberstein, presented characters which, Mr. Bowerbank is of opinion, indicated gemmules in an immature state, or in different stages of development, fixed to the fibre of the sponge; and in another specimen, believed to have been received from the same locality, gemmules in different conditions were sparingly scattered amid the tissue.

If this idea of the development of the gemmules *in situ* be correct, it will account, the author thinks, for the frequent occurrence of small detached patches of minute sponge-fibre in well-developed and large-sized tissue. Several other specimens, considered by Mr. Bowerbank to contain gemmules in different stages of development or decomposition, are described in the paper, particularly an agate from Antigua in the possession of Mr. R. Brown; and one from Oberstein, which contained vast numbers of small, pellucid, yellow globules, bearing a strong resemblance to the minute granules which occur in the gelatinous or fleshy sheath surrounding the fibres of the sponge of commerce, and which are probably incipient germs. In accounting for the preservation of the gemmules in a fossil state, Mr. Bowerbank refers to the covering of the ova of birds, fishes and reptiles; and he says, it is natural to expect that the gemmules of the sponge should be similarly protected, and therefore preserved after the decay of the sponge from which they derived their origin.

3. *Vascular structure.*—In a species of recent Turkey sponge, and in some others from Australia*, Mr. Bowerbank detected in the horny sheath which invested the solid fibre, minute anastomosing vessels; but he has not observed a similar vascular covering on the external surface of the two specimens of *Spongia fistularis* which he has examined. The co-existence, however, of this sheath with a tubular fibre, he states, he has discovered in specimens of Indian green jasper. On examining with a power of 60 linear a thin polished slice, he found that some well-preserved tubes, of greater size than the rest, had, on their external surface, a coating of a darker colour than the other parts of the fibre, and were evidently analogous to the vascular sheath of the keratose sponges of commerce. On employing a power of 500 linear, the presence of a reticulated vascular structure was exhibited as distinctly as in the recent sponge, particularly where a portion of the originally horny or fleshy part of the sheath had undergone a slight degree of decomposition. This structure Mr. Bowerbank has also detected in two fragments of flint-pebbles.

The characters exhibited by this external coating are not the only evidences of vascular structure which the author found during his examination of the organic remains inclosed in moss agates and Indian green jaspers, for he discovered in the centre of the tube which exhibited the sheath, a dark thread penetrating the cavity for a considerable distance, and when examined with a power of 500 linear, it assumed the appearance of a spiral tubular thread, frequently obscured by irregular patches of a substance which the author conceives may have been glutinous animal matter. In another specimen of green jasper the spiral course of this curious tissue was much less obscure, and when examined with a power of 800 linear its tubular nature was evident. The same tissue also lined the cavity of almost every fibre of the sponge which was stated to exhibit a structure composed of foliaceous plates, like the skeletons of the leaves of some endogenous plants. In an agate, probably from Oberstein, Mr. Bowerbank says, he detected other evidences of tissue of an exceedingly remarkable character. The fibre, which was very large, had been apparently surrounded by a villose coat, and wherever, by polishing, a longitudinal section had been exposed, one or two minute vessels of uniform diameter and simple structure were visible in the centre of the fibre, and ranging in the direction of its axis. At irregular distances within these vessels the author discovered pellucid round globules, the diameter of which varied from the 1000th to the 2380th of an inch, the diameter of the vessels ranging from the 1000th to the 2000th of an inch. In other parts of the interior of the fibre were opake or semi-pellucid spheres, and in different portions of the agate were considerable numbers of larger, opake, round bodies, the whole of which Mr. Bowerbank considers to be gemmules in various states of development; and he thinks it is extremely probable that the vessels containing the globules were true ovarian ducts. In support of this inference Mr. Bowerbank describes another agate, in which there were no appearances of well-defined anastomosing fibres, but which exhibited numerous long and simple thread-like fibres apparently much decomposed, as their substance consisted sometimes of a congeries of minute separate particles, and sometimes of straight or curved lines composed of minute black bodies. In other cases these strings of incipient gemmules were contained within the boundaries of the tubes, and then presented rarely more than a row of single gemmules; but occasionally the diameter of the vessels appeared to have been much enlarged, and the gemmules were indiscriminately dispersed within its cavity. In some instances also they exceeded in diameter the vessel or its remains, as if they had outgrown and burst their natural boundary, or the walls of the latter had contracted. From the close resemblance in the structure and contents of these vessels to those contained in the large sponge-fibre first described, Mr. Bowerbank has little doubt, whatever may have been their original nature, that they are the same kind of tissue, under somewhat different conditions.

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* Microscopic Journal, vol. i. No. 1, p. 10.

In all the agates and jaspers which have been microscopically investigated by the author, the spaces not occupied by remains of spongeous texture were filled with silex or chalcedony arranged in bands which conformed more or less to the outline of the enclosed fossil. Where, however, the matrix consisted of radiating crystals, the decayed animal remains frequently appeared to have been impelled forward, in the same manner as the decomposed cellular portions of fossil wood have often yielded to the crystallizing process of the associated mineral matter.

Egyptian jaspers, Mocha stones, &c.—The author has examined also numerous specimens of polished Egyptian jaspers, which, when viewed as opake objects, by direct light and with a power of 150 linear, were found to consist of finely comminuted light buff or brown irregular granules, cemented by semi-transparent silex, very much resembling the state in which it exists in chalk-flints and greensand cherts, and to the variations in its colouring matter the banded appearance of the jaspers is due. Imbedded, but very unequally in the layers composing the jaspers, Mr. Bowerbank discovered hundreds of beautiful foraminifera closely resembling those found in chalk-flints, and often difficult to distinguish from the species found in the Grignon sand of the calcaire grossier.

The Mocha stones which the author has examined, presented no indications of organic structure, the moss-like delineations and other appearances, resembling beautiful, thin, reticulated tissues, being due to dendritical or metallic infiltrations.

In the larger pebbles of a mass of Herefordshire pudding-stone, Mr. Bowerbank discovered the characteristic spongeous structure of chalk-flints.

In conclusion, the author dwells upon the difficulties attending the study of the bodies which he has examined and described, in consequence of the little attention which has been paid, with few exceptions, to the structure of recent sponges; and he states that the aspect of the latter, when viewed by the unassisted eye, is so different from that which it presents when seen under a high microscopic power, that those who have not been accustomed to study recent sponges with that aid would never recognise a similar structure in the fossils described by him. He also shows that the prevalence of keratose sponges over those belonging to the genus *Halichondria* is what might naturally be expected, as the spicula which form the skeleton of the latter would be less likely to be preserved in their original position than the horny fibres of the former.

Lastly, the author alludes to the great share which sponges have had in the production of the solid strata of the earth's crust.

ZOOLOGICAL SOCIETY.

March 9, 1841.—James Whishaw, Esq., in the Chair.

A paper by Dr. Richardson, on some new or little known fishes from the Australian seas, was read. The following is an abstract of this paper.

1. Cheilodactylus gibbosus, *formâ Cheilodactyli zonati, (h. e. capite brevi, ore parvulo, dentibus brevibus setaceis; dorso gibbo, spinâ quartâ longissimâ;) radiis pinnæ dorsalis articulatis radios spinosos numero plus duplo excedentibus.*

Radii. P. 8·VI; D. 17·36; V. 1·5; A. 3·8; C.

This species differs from the ordinary *Cheilodactyli*, and agrees with the Japanese species discovered by the naturalists who accompanied Admiral Krusenstern, in the body being very high in the pectoral region, and tapering away in a lengthened manner posteriorly;

in the abruptly and steeply arched form of the spinous dorsal anteriorly, the smallness of the mouth, the slender teeth, and in horn-like protuberances on the fore-part of the orbit, and also on the tip of the snout, the latter formed by the projecting shoulders of the maxillary bones. The Japanese species named *zonatus* in the 'Hist. des Poissons,' has only twenty-nine articulated rays in the dorsal, and differs in the distribution of its dark bands of colour, which in *gibbosus* run as follows:—one obliquely backwards over the eye and operculum, another over the nape and tip of the gill-flap, meeting the former at the base of the pectoral; a third takes in the first three short dorsal spines, and tapers away on the side under the middle of the pectoral; while a fourth proceeding from a black patch which occupies the fifth and seven following spines, and keeping parallel to the base of the dorsal, runs along the summit of the back to the tail. In *zonatus* there are seven or eight dark stripes running obliquely backwards. Both species appear to have spots on the tail. The description of *Cheilodactylus gibbosus* is drawn up from two Western Australian specimens brought home by Mr. Gould; and the fish also inhabits the seas of New Zealand, Mr. Gray having recognised a drawing by Parkinson of a specimen which was caught in Endeavour River, on Cook's second voyage, as being a correct representation of this fish. (Vide Banks, Icon. ined. t. 23.) One of Mr. Gould's specimens is deposited in the British Museum, and the other at Haslar Hospital.

2. OSTRACION LENTICULARIS, *inermis, ovali-compressus, dorso ventreque carinatis.*

RADII. P. 12; D. 10; A. 10; C. 11.

The discovery of this species adds another form to the genus *Ostracion*, the shapes enumerated in the 'Règne Animal' being triangular with or without spines, quadrangular with or without spines,—and compressed with a keeled belly and scattered spines. In *lenticularis* we have a compressed form with a keeled back and belly and no spines. The compressed Ostracions with scattered spines have been characterized by Mr. Gray as a subgeneric group, under the name of *Aracana*, and several Van Diemen's Land species were lately described to the Society by the author of the present paper. The *Aracana Reevesii* (Gray) from China differs from the Van Diemen's Land species in having the back slightly keeled, and thus forms a transition to the form of *lenticularis*, in which the sides are convex, the back and belly acute, and the profile elliptical. *Lenticularis*, though unarmed, exhibits an analogy to the armed *Aracanæ*, in the umbones of the reticulated surface being largest where the spines would be situated, did they exist. The species is Australian, and the author expresses his obligations to Dr. Andrew Smith, of Fort Pitt, for the loan of two specimens of different ages.

3. ANGUILLA AUSTRALIS. Van Diemen's Land Eel.

ANGUILLA AUSTRALIS, *maxillâ inferiore longiore, pinnâ dorsi supra anum incipienti, rictu magno.*

This is a Port Arthur freshwater species, for which the author expresses himself indebted to Mr. Lemprière. It differs from the common freshwater eels of Europe in the more posterior origin of the dorsal, as well as in the more anterior position of the vent. The pectorals are lanceolate, the vertical fins are but moderately high, and the gape extends to the posterior margin of the orbit.

4. NARCINE TASMANIENSIS, *dorso dipterygio, corpore latè obovato; valvulâ nasali obtusè trilobatâ integerrimâ; pinnâ ventrali disco pectorali approximatâ.*

The author having but recently had an opportunity of consulting Henle's Monograph of the genus *Narcine*, takes this opportunity of supplying a specific character of the Van Diemen's Land species, which was formerly described to the Society (Zool. Proceed. for March 1840, p. 29), but which could not be distinctively characterized from his want of knowledge of the other species.

A paper by W. J. Broderip, Esq., in which the author proceeds with his descriptions of Mr. Cuming's shells, was next read.

HELIX CRYPTICA. *Hel. testâ tumidâ, subumbilicatâ, subglobosâ, anfractibus* 3 *subcorrugatis* (*ultimo longè maximo, obscurè fasciato*), *lineis incrementi creberrimè obliquè substriatis, purpureo-brunneâ, epidermide sordidè brunneâ; aperturâ subelongato-auriculiformi, intus subargenteo-cærulescente, subiridescente; labii limbo rubro-brunneo, haud patulo, reflexo.*

Long. $1\frac{6}{8}$; lat. $2\frac{1}{2}$ poll.

Hab. ad Catbalonga Insulæ Samar sub foliis desiccatis.

Mr. Cuming found this *Helix* hidden under the decayed leaves of trees. The inside of the mouth has that silvery iridescence which may be observed in the tendon of a muscle in some of the mammiferous animals, and through it may be seen the purple-brown colour of the shell, which thus puts on a subcærulescent appearance.

HELIX LATITANS? *Hel. testâ subtumidâ, subcomplanatâ, purpureo-rubrâ, anfractibus* 3 *lineis incrementi creberrimè striatis* (*ultimo longissimè maximo*), *epidermide sordidè albente; aperturâ maximâ e brunneo subalbido-iridescente, labio patulo, reflexo, rubente, albido internè limbato.*

Long. $1\frac{5}{8}$; lat. $2\frac{5}{8}$ poll.

Hab. ad Gindulman Insulæ Bohol sub foliis desiccatis.

At first sight, this *Helix*, which was also found by Mr. Cuming under decayed leaves, looks a good deal like *H. cryptica*; but on a nearer inspection not only will a difference in form almost indescribable be observed, but also in the texture of the shell, which is without corrugations. The mouth too is much wider and broader, and the reflected lip much more patulous. The silvery iridescence of the mouth extends but a short distance within the aperture, but the polish is continued far in. Still it may only be a variety of *H. cryptica*.

HELIX CRETATA. *Hel. testâ subglobosâ, tumidâ, anfractibus* 3 (*ul-*

timo longè maximo, fasciis et lineis nigricantibus cincto), lineis incrementi creberrimè obliquè striatis et lineis elevatis cinctis, brunneo-nigricante, epidermide cretaceâ; aperturâ argenteo-subcæruleâ, labii limbo obscurè rubente.

Hab. ad Tannauan Insulæ Leyte foliis arborum hærens.

Mr. Cuming has shown me a young shell which he brought from the mountains of Tanhay in the Isle of Negros, where it was taken on the leaves of trees. I thought at first that it might be the young of *Helix Harfordii*, but the sculpture of the shell and the quality of the epidermis correspond so closely with those of the adult shell just described, that though there is some difficulty arising from the capture of the two shells in different islands, I am inclined to be of opinion that it is probably the young of *Helix cretata*.

HELIX PAN. *Hel. testâ globosâ, subelevatâ, umbilicatâ, zonatâ, anfractibus* 4 (*ultimo maximo*) *lineis incrementi minutissimè obliquè striatis; columellâ albidâ, aperturâ subrotundâ, cæruleo-albente, labii limbo angusto, subreflexo.*

Long. $1\frac{5}{8}$; lat. $1\frac{7}{8}$, variat ad infinitum.

Var. *a.* Albens brunneo et nigro pulcherrimè fasciata.

Of the whitish class of variety (*a*) there are variations without end, according as the bands are more or less present or absent. In some the whitish epidermis is only relieved by a brown sutural line and a deep submedial band on the body-whorl, which is more or less interrupted and ribanded with white and light brown towards the base.

Var. *b.* Brunnea albido et nigricante concinnè fasciata.

The same may be said of this section, which varies as much as var. *a.* This imperfect description was drawn from six of each class; but at least treble the number of each would be requisite to give a correct idea of the infinite variations of this beautiful species.

March 23.—William Yarrell, Esq., Vice-President, in the Chair.

A collection of birds from Newfoundland, presented by E. Moore, Esq., was exhibited: it consists of specimens, in different states of plumage, of the Willow Ptarmigan (*Tetrao Saliceti*), a specimen of the Pin-tailed Duck (*Dafila caudacuta*), the American Teal (*Querquedula Americana*), and the Black-backed Gull (*Larus marinus*). The collection also contains a fœtal Esquimaux preserved in spirit.

A paper by G. B. Sowerby, Esq., was read, in which the author proceeds with his descriptions of the new species of shells collected by H. Cuming, Esq., in the Philippine Islands. The following species were described and exhibited:—

HELIX MATRUELIS. *Hel. testâ depressiusculo-subglobosâ, tenuiusculâ, lævi, castaneâ, epidermide opacâ, pallescente, hydrophanâ indutâ; spirâ subdepressâ, anfractibus quatuor subrotundatis, ultimo maximo, ventricoso; suturâ distinctâ; aperturâ subtrapezoidali, extùs rotundatâ, intùs sinum propè columellam efformante,* *labio externo reflexo rotundato, fusco; columellâ latiusculâ, declivi, anticè obliquè subtruncatâ.*

Long. 1·1; lat. 1·6 poll.

Hab. supra folia arborum propè Cagayan, Provinciæ Misamis, Insulæ Mindanao, Philippinarum.

Obs. *Variat interdùm spirâ minus depressâ.*

Of this species there are two varieties in form and several in colouring. The variety with a rather more than usually elevated spire very closely resembles some of the varieties of *Helix Roissyana*; still it may be distinguished from that species by the much greater declivity of the columella, and its broader and less rounded outer lip. In the general arrangement of the colouring all the varieties are somewhat similar, particularly in the dark chestnut colour of the apex, which is continuous down the anterior part of the following volutions; the upper part of the second and third volutions are lighter; the columella is dark brown, and there is always a very light band surrounding it, which when covered with its epidermis is light yellow-brown, but when deprived of it is white; this is surrounded by a very dark brown band. The following are the varieties in colour, viz.

a. Shell with a dark brown band at the periphery and another antesutural dark brown band; epidermis with a very pale band at the circumference.

b. Shell coloured precisely like *a.*: epidermis with a very dark band at the circumference.

c. Shell with the spire more elevated; last volutions very dark brown, with a white antesutural and another white band at the circumference.

Helix setiger. *Hel. testâ suborbiculari, tenui, brunneâ, spirâ levatiusculâ, anfractibus senis, rotundatis, angustioribus; aperturâ semilunari, labio externo, tenuissimo; epidermide setigerâ, setis regulariter coordinatis.*

Long. 1·; lat. 1·2 poll.

Hab. in ligno putrido propè St. Jaun, Provinciæ Cagayan, Insulæ Luçon.

Shell dark brown, with a yellowish band in front of the periphery, and a broad band of the same surrounding the columella, which is small and white and deeply placed.

Helix velutina. *Hel. testâ suborbiculari, subdepressâ, tenui, pallidè brunneâ, epidermide velutino indutâ, anticè lævi, nitidâ; spirâ depressâ, anfractibus quinque, rotundatis; aperturâ semilunari, posticè rotundato-subtruncatâ; labio externo tenui; columellâ parvâ, profundâ.*

Long. 0·7; lat. 1·2 poll.

Hab. in arboribus putridis ad Insulam Guimaras, Philippinarum.

Close-set short hairs, covering the whole of the upper part of the shell and part of the lower, give it a velvety appearance and softness. Two varieties of this species have occurred, one of smaller size and paler colour at the Isle of Negros, and the other like the last with two brown bands at Mount Isarog.

Helix brevidens. *Hel. testâ suborbiculari, subdepressâ, tenuiusculâ, pallidè brunneâ, lineâ brunneâ supernè circumdatâ; spirâ subplanulatâ, anfractibus quatuor, supernè subplanulatis, ad peripheriam rotundato-subangulatis, infrà rotundatis; aperturâ semilunari, posticè depressâ, labio externo albo, rotundato-reflexo, anticè, propè columellam unidentato, dente brevi, obtuso, albo; umbilico parvo, labio columellari partim obtecto.*

Long. 0·5; lat. 0·8 poll.

Hab. at Puerto-Galero.

The epidermis of this species has numerous close-set, very short hairs, which renders it rather rough to the touch.

Helix gummata. *Hel. testâ suborbiculari, conico-subdepressâ, crassiusculâ, supernè decussatim striatâ, infrà lævi, nitidâ, striis incrementi solùm insculptâ; spirâ conico-subdepressâ, anfractibus senis, rotundatis, angustioribus, epidermide corneo, nitido, supernè indutis; aperturâ semilunari, labio externo tenui, propè columellam subincrassato; columellâ profundâ.*

Long. 0·8; lat. 1·3 poll.

Hab. in ligno putrido propè Nuevam Insulæ Luçon, Philippinarum.

The upper or posterior part of this shell is covered with a thin horny epidermis, which gives it the appearance of having had a coat of varnish or gum spread over it, whence the name. In colour its upper surface is dark brown, the circumference light yellowish brown, then a band of the same colour as the upper surface, and then the lower or anterior part is of the same colour as the circumference. A variety occurs which is smaller and darker coloured, at the same time its brown band in front of the circumference is much broader.

Helix sphærica. *Hel. testâ sphæroidali, crassiusculâ, flavâ, lineâ spirali nigro-fuscescente circumdatâ; haud nitente, spirâ obtusâ, anfractibus quatuor ventricosis, ultimo maximo; aperturâ subcirculari, labio externo crasso, reflexo, albo, margine nigro; columellâ latâ, crassâ, albâ margine nigricante.*

Long. 0·9; lat. 1·0 poll.

Hab. supra folia arborum propè St. Esteven Provinciæ Ilocos meridionalis Insulæ Luçon, Philippinarum.

Five varieties of this very brilliant species have occurred to Mr. Cuming; viz.

a. Bright yellow with a narrow white band close to the suture in front.

b. Pale brownish yellow: in other respects the same as *a.*

c. Bright yellow with a narrow white band close to the suture in front and a broad brown band at the circumference.

d. Same as *a,* only having in addition pale brown irregular longitudinal stripes on the last volution.

e. Same as *a,* only having in addition bright brown irregular longitudinal stripes on the last volution; found on the leaves of the Pandanus in the mountains of the Igorro in the north part of Luçon.

Helix (Carocolla) semigranosa. *Hel. testâ suborbiculari conico-subdepressâ, supernè granulosâ, subtùs lævi, nitidâ; spirâ conico-subdepressâ, anfractibus senis, rotundatis, ad marginem carinatis; labio externo tenui, acuto, propè columellam crassiusculo; umbilico minimo.*

Hab. ad Insulam Luban dictam, Philippinarum.

The margin of the last volution immediately in front of the keel is slightly crenulated, and of a dark brown colour: the remainder of the shell is of an uniform yellow-brown colour.

ROYAL IRISH ACADEMY.

Feb. 22, 1841.—Mr. Charles T. Webber presented to the Academy an ancient stone, on which is carved a rude bass-relief, supposed to be the representation of a dog killing a wolf. Mr. Webber accompanied the present with a communication to the effect that the stone was taken from the Castle of Ardnaglass, in the barony of Tireragh and county of Sligo, and was said to commemorate the destruction of the last wolf in Ireland. The current tradition in the place from whence it came was, that, some years after it was supposed that the race of wolves was extinct, the flocks in the county of Leitrim were attacked by a wild animal which turned out to be a wolf; that thereupon the chieftains of Leitrim applied to O'Dowd, the chieftain of Tireragh (who possessed a celebrated dog of the breed of the ancient Irish wolf-dog), to come and hunt the wolf; which application being complied with by O'Dowd, there ensued a chase, which forms the subject of an ancient Irish legend, detailing the various districts through which it was pursued, until at length the wolf was overtaken and killed in a small wood of pine-trees, at the foot of one of the mountains in Tireragh. The quarter of land on which the wolf was killed, is to this day called *Carrow na Madhoo*, which means *the dogs' quarter*. In commemoration of the event, O'Dowd had the representation of it carved on the stone, and placed in the wall of his baronial residence. A wood engraving of the bass-relief is given in the Proceedings of the Academy, No. 28.

March 16.—In connexion with the subject of Mr. Webber's remarks at the last meeting, Sir W. Betham communicated the following document, giving an account of an order made by King James I. for the destruction of wolves in Ireland.

Patent Roll, 12 Jac. I. d. R. 17. "The King being given to understand the great loss and hindrance which arose in Ireland by the multitude of wolves, in all parts of the kingdom, did by letters from Newmarket, 26th November 1614, direct a grant to be made by patent to Henrie Tuttesham, who by petition had made offer to repair into Ireland, and there use his best skill and endeavour to destroy the said wolves, providing at his own charge men, dogs, traps, and engines, and requiring no other allowance, save only four nobles sterling, for the head of every wolf, young or old, out of every county, and to be authorized to keep four men and twelve couple of hounds in every county, for seven years next after the date of these letters." 12 Jac. s. L. R. 27.

IMPERIAL ACADEMY OF ST. PETERSBURGH, 1841.

In the botanical section, M. Trinius delivered a revision and a classification of the genera and species of the family of the *Agrostideæ* and MM. Fischer and Meyer, two notes, the first containing the description of a plant from Mexico, which forms the type of a new genus of the family of the *Orchideæ,* under the name of *Seraphyta multiflora* ; and the second, of the *Uwarowia chrysanthemifolia* of M. Bunge, with a drawing of this plant. M. Meyer also read a monographic memoir on the *Alyssum minutum,* and the analogous species, followed by a view of the species which form the genus *Psilonema,* as well as the first part of a long treatise on the natural family of the *Polygonaceæ,* under the title of An attempt at a natural arrangement of the genera of this family. He has in fact finished a work begun by the late M. Bongard, the object of which is the description of the plants gathered, in 1838, in the neighbourhood of the Saisang-Nor, and on the banks of the Irtish. This collection, containing 331 species, was made by a pupil of M. Gebler, named Politoff, at Barndoul, in an excursion during the summer months of the above-mentioned year, at the expense of the Academy. However abundant this collection may be thought, considering the little time and expense which it cost, it is still far from furnishing us with a complete picture of the remarkable flora of Songarie; it nevertheless presents some of its isolated and characteristic features, to which M. Meyer directs the attention of botanists in his preface. He has annexed to his memoir drawings of eighteen new species contained in this collection, and has expressed a desire of seeing his work not only inserted in the Collected Acts of the Academy, but of its being printed separately *in octavo* by the title of M. Ledebour's Second Supplement to the Flora of the Altaï, the first having been made by M. Bunge from the materials which he had collected during his journey in 1832, which was also made at the expense of the Academy. The Academy complied with this desire. M. Ruprecht, who, as we mentioned above, has furnished a description of the Algæ collected by Mertens in his circumnavigation, has, together with M. Baer, undertaken the arrangement and the determination of the Thalassiophytes which this academician brought back from his expeditions in the north. M. Bunge, a corresponding member, has sent us a note on the genus *Siphonostegia,* established by Mr. Bentham the English botanist, and a memoir on a new species of the genus *Pedicularis.* M. Trautvetter has sent to the Academy the description of a new species belonging to his genus *Faldermannia,* and to which he gives the specific name of *parviflora* ; and also, in two notes, his remarks on two species of (*Nenuphar*) water-lily to which he has given the name of *Lotus circinatus* and *Lotus Candollei,* and on the genera which have the greatest analogy with *Trifolium.* Lastly, we are indebted to M. Schrenk for an interesting sketch of the vegetation of the island of Hochland, in the Gulf of Finland.—*Recueil des Actes, &c.,* p. 32.